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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,015	06/27/2003	Jozef Szlufcik	IMEC306.001AUS	8356
20995	7590	05/02/2006	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			VINH, LAN	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			1765	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/609,015	SZLUFCIK ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Lan Vinh	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,8-15,25-29 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,8-10,13,25-29 and 31-33 is/are rejected.
- 7) ☒ Claim(s) 11,12,14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/7/2006 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5-6, 8, 13, 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Masuko et al (US 2002/0034611A1)

Masuko discloses a process for forming a pattern on a substrate. The process comprises the steps of: applying an alkaline etching solution (potassium hydroxide) to an inorganic powder dispersed paste layer 21 of the silicon substrate 11, the paste layer comprises a binder/thickener and a solvent (col 4, paragraph 0083, 0091; col 5,

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paragraph 0104; col 8, paragraph 0166; fig. 4f), which reads on applying an a caustic etching paste comprising an etchant and a thickener to a part or a layer of the substrate, wherein the semiconductor substrate is a microcrystalline silicon substrate and wherein the etchant is a water-based potassium hydroxide

heating the substrate such as the part of the layer of the substrate upon which the etching paste has been applied is patterned/etched (col 11, paragraph 0215; col 14, paragraph 0269; fig.4i)

Regarding claims 5-6. Masuko discloses the etching paste includes solvent, binder thickener (col 4, paragraph 0091), which reads on the etching paste comprises a natural etching paste/natural synthetic paste

Regarding claims 8, 13, Masuko discloses that the paste 21 is applied selectively to a major surface and one edge of the substrate to form a pattern of applied paste (col 3, paragraph 0061; fig. 4g)

The limitations of claims 25, 28-29 have been discussed above

Regarding claims 26-27, Masuko discloses that the etching solution/developer comprises of ammonium hydroxide, sodium hydroxide (col 8, paragraph 0161, 0168)

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuko et al (US 2002/0034611A1) in view of Klein et al (US 2003/0160026 A1)

Masuko method has been described above. Unlike the instant claimed inventions as per claims 9-10, Masuko fails to specifically disclose using screen-printing/selective deposition method to apply the etching paste

Klein discloses a method for etching a semiconductor substrate comprises a step of applying an etching paste using screen-printing/selective deposition method (col 4, paragraph 0100)

One skilled in the art at the time the invention was made would have found it obvious to modify Masuko method by using screen-printing/selective deposition method to apply the etching paste as per Klein because Klein discloses that screen-printing is a suitable technique for applying the etching paste as desired (col 4, paragraph 0100)

5. Claims 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuko et al (US 2002/0034611A1) in view of Klein et al (US 2003/0160026 A1)

Masuko method has been described above. Unlike the instant claimed inventions as per claims 31-33, Masuko fails to specifically disclose using carboxyalkylcellulose salt as a thickener

Klein (US 2003/0160026 A1) also discloses that the etching paste comprises a solvent such as water ( col 3, paragraph 0059) and a thickener such as sodium carboxymethylhydroxyethyl cellulose, starch derivative (col 4, paragraph 0071, 0072)

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One skilled in the art at the time the invention was made would have found it obvious to modify Masuko method by using sodium carboxymethylhydroxyethyl cellulose as a thickener as per Klein because Klein discloses that sodium carboxymethylhydroxyethyl cellulose is a possible thickener and the etching paste is completely homogeneous with addition of thickener (col 3, paragraph 0068)

***Allowable Subject Matter***

6. Claims 11-12, 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 11, 14, the cited prior art of record, taken alone or in combination, fails to disclose or suggest a method for etching a semiconductor substrate comprises a step of doping a region of the substrate to yield a do/ed region of the substrate, wherein the step of doping is conducted before the step of applying an etching paste, and wherein the step of applying an etching paste comprises applying an etching paste to the doped region of the substrate/ forming at least one metal contact on an emitter region of the substrate, in combination with the rest of the limitations of claims 11, 14

***Response to Arguments***

7. Applicant's arguments with respect to rejection(s) of claims 1-6, 8-13, 25-33 based on Klein et al (US 2003/0160026) in view of Williams (US 6,594,542) and Skorupshi (US 2002/016221) have been considered but are moot in view of the new ground(s) of rejection.

The applicants argue that there is no teaching, suggestion, or motivation to substitute ammonium hydroxide, as taught by Skorupshi, or any of the other recited etchants for the ammonium (bi)fluoride etchants of Klein because substituting a strong base etchant for an acidic fluoride-containing etchant clearly changes the principle of operation of the etching media of Klein. This argument is moot in view of the new ground of rejection based on Masuko et al (US 2002/0034611A1) since Masuko discloses a process for forming a pattern on a substrate by applying an alkaline etching/developer solution contains ammonium hydroxide (col 8, paragraph 0161, 0168)

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'LV' followed by a stylized flourish.

LV  
April 25, 2006